

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1-51. (Cancelled)

52. (Currently amended) A surgical fluid flow controlling handpiece having a range of relatively low flow rates and a relatively high flow rate, comprising:

a housing having a fluid flow passage therethrough;

~~a first flow control on a~~ displaceable valve member located in said housing and operatively associated with said passage, said ~~first flow control~~ valve member having a valve member opening displaceable through a range of valve member positions with respect to said fluid flow passage corresponding respectively to a range of relatively low flow rates through said fluid flow passage;

a second flow control comprising normally open switch contacts on said housing and operatively associated with said ~~passage and said first flow control, said second flow control having a position and said first flow control having a given position in its said range of positions, which said first flow control given position and said second flow control position together correspond to a relatively high flow rate through said passage~~ valve member, said normally open condition of said switch contacts corresponding to a first part of said range of valve member positions excluding a fully open position of said valve member; and

an electric circuit including said contacts and an energy source and a fluid pump unit connected to said fluid supply connection, said switch contacts having a closed position corresponding to a second part of the range of valve positions

including said fully open end of said range, the closed switch contacts energizing said fluid pump unit to supply a relatively high fluid flow rate.

53-54. (Cancelled)

55. (Currently amended) A surgical suction irrigation handpiece comprising:

a housing comprising a suction port connectable to a suction source, an irrigation liquid inlet port, and a third port opposable to a surgical site;

an irrigation liquid flow control assembly on said housing;

a remote irrigation liquid pump unit and an elongate irrigation liquid path connecting said pump unit and handpiece;

a suction flow control assembly on said handpiece including (1) a hand engagable, reciprocating member and (2) a hand engagable rotating member adjacent said hand engagable reciprocating member, said hand engagable rotating member comprising a rotatable valve element.

56. (Currently amended) The apparatus of Claim 55 including a suction flow path between said third port and suction port, said hand engagable reciprocating member comprising a reciprocating valve element in said suction flow path, ~~said hand engagable rotating member comprising a~~ wherein said rotatable valve element is in said suction flow path.

57. (Previously presented) The apparatus of Claim 56 in which said reciprocating valve element has a closed position and said rotating valve element has an open position defining a suction flow bypass around said reciprocating valve element.

58. (Currently amended) A surgical suction irrigation handpiece comprising:

a housing having a suction port, an irrigation liquid inlet port, and a third port opposable to a surgical site;

an irrigation liquid flow control assembly on said housing;

a suction flow control assembly on said housing—and comprising:

a first, relatively high rate, suction flow path between said suction port and the third port, and

a second, relatively low rate, suction flow path separate from the first suction flow path and located between said suction port and the third port.

59. (Currently amended) The apparatus of Claim 58 including a first suction valve ~~and~~for said first suction flow path and a second suction valve ~~and~~for said second suction flow path.

60. (Previously presented) The apparatus of Claim 59 in which said first suction valve comprises a reciprocating valve and said second suction valve comprises a rotating valve.

61. (Currently amended) The apparatus of Claim ~~58~~60 in which said rotating valve is located in ~~one~~—said second suction flow path.

62. (Previously presented) The apparatus of Claim 58 in which said first, relatively high rate, suction flow path includes a substantially straight portion, and said second, relatively low rate, suction flow path includes a curved portion offset from said straight portion.

63. (Previously presented) The apparatus of Claim 62 including a first suction valve defining said straight portion and a second suction valve defining said curved portion.

64. (Currently amended) The apparatus of Claim 63 in which said first ~~section thereof~~suction valve comprises a reciprocating valve and said second suction valve comprises a rotary valve.

65. (Currently amended) A surgical suction irrigation apparatus, comprising:

a handpiece:

a pump unit having a gravity irrigation liquid supply inlet and a gravity irrigation liquid flow conduit connected between said inlet and handpiece, a pressure adding impeller in said conduit, said impeller having a deenergized condition in which it is inert to gravity pressure, irrigation liquid flow to said conduit, said impeller having an energized, pressure adding condition in which irrigation liquid in said conduit downstream of said impeller is at higher than gravity pressure;

a suction valve on said handpiece between a suction source connection on said handpiece and a surgical site connectable port on said handpiece;

an irrigation liquid valve on said handpiece between said port and an irrigation liquid inlet connection to said conduit, said irrigation liquid valve including an impeller deenergized/impeller energized control operatively connected to said pump unit, ~~said irrigation liquid valve having partially and fully closed positions corresponding to said deenergized condition of said pump unit and to gravitational pressure irrigation liquid at said irrigation inlet connection, said irrigation liquid valve having partially and fully opened positions corresponding to said energized pressure adding condition of said pump unit and to greater than gravitational irrigation liquid pressure at said irrigation liquid inlet connections~~said liquid valve having: 1) a fully closed position corresponding to said de-energized condition of said pump unit and closing off of the irrigation

liquid inlet connection from said conduit; 2) partially closed positions corresponding to said de-energized condition of said pump unit that provide gravitational pressure irrigation liquid to said conduit; 3) partially open positions corresponding to said energized condition of said pump unit to provide greater than gravitational pressure irrigation liquid to said conduit; and 4) a fully open position corresponding to said energized condition of said pump unit to provide maximum irrigation liquid to said conduit.

66. (Currently amended) The apparatus of Claim 65 in which said control comprises a switch on said handpiece and a signal path between ~~the~~ said switch and said pump unit.

67. (Currently amended) The apparatus of Claim 66 in which said switch is an electric switch ~~in~~and said signal path is an electric current flow path.

68. (Previously presented) The apparatus of Claim 67 in which said pump unit comprises an electric current source and said irrigation liquid inlet is formed as an upstanding hollow spike having an irrigation liquid supply bag engagable, hanger portion.

69. (Currently amended) A surgical suction control handpiece, comprising:

a housing having a fluid flow passage with a surgical site imposable port;

a suction connection to said housing;

a first suction valve actuator interposed between said ~~section~~suction connection and the fluid flow passage and having a full open position corresponding to a relatively high suction flow; and

a second suction valve actuator independent of said first suction valve actuator and having a full open position corresponding to a relatively low suction flow rate.

70. (Previously presented) The apparatus of Claim 69 including first and second suction valves respectively operatively associated with said first suction valve actuator and said second suction valve actuator.

71. (Previously presented) The apparatus of Claim 70 including first and second suction paths respectively through said first and second suction valves.

72. (Previously presented) The apparatus of Claim 71 in which said first suction valve actuator comprises a reciprocable actuator and said second suction valve actuator comprises a rotary actuator.

73. (New) A surgical fluid flow controlling handpiece comprising:

- a housing having a fluid flow passage with a surgical site imposable port;

- an input connection to said housing;

- a first flow control actuator interposed between said input connection and the fluid flow passage, the flow control actuator having a full open position corresponding to a relatively high fluid flow rate; and

- a second flow control actuator for adjusting the fluid flow rate and having a full open position corresponding to a relatively low fluid flow rate, the second flow control actuator maintaining a selected fluid flow rate when said second flow control actuator is released.

74. (New) The surgical fluid flow controlling handpiece of Claim 73, wherein the fluid flow comprises suction.

75. (New) The surgical fluid flow controlling handpiece of Claim 73, wherein the first flow control actuator comprises

a push button that maintains the relatively high fluid flow rate until the push button is released.

76. (New) The surgical fluid flow controlling handpiece of Claim 73, wherein the second flow control actuator is independent from the first flow control actuator.

77. (New) The surgical fluid flow controlling handpiece of Claim 73, wherein the second flow control actuator is rotatable and maintains its position when released.

78. (New) The surgical suction irrigation apparatus of Claim 65, wherein said irrigation flow control actuator comprises a push button that closes an electric switch to energize said pump unit when said liquid valve is about 1/3 open.